FIG. 1

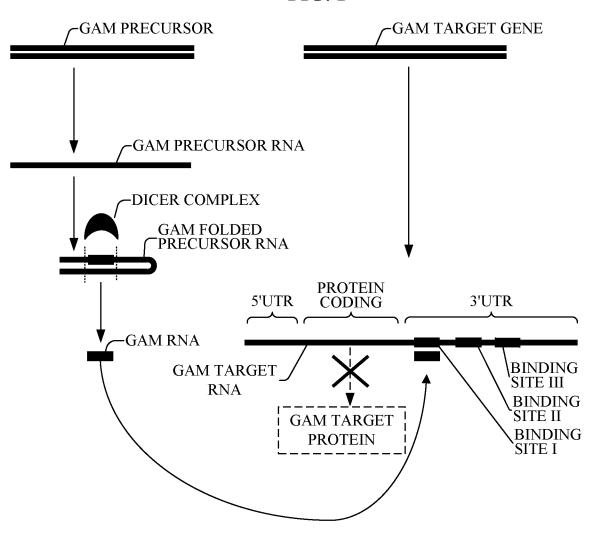
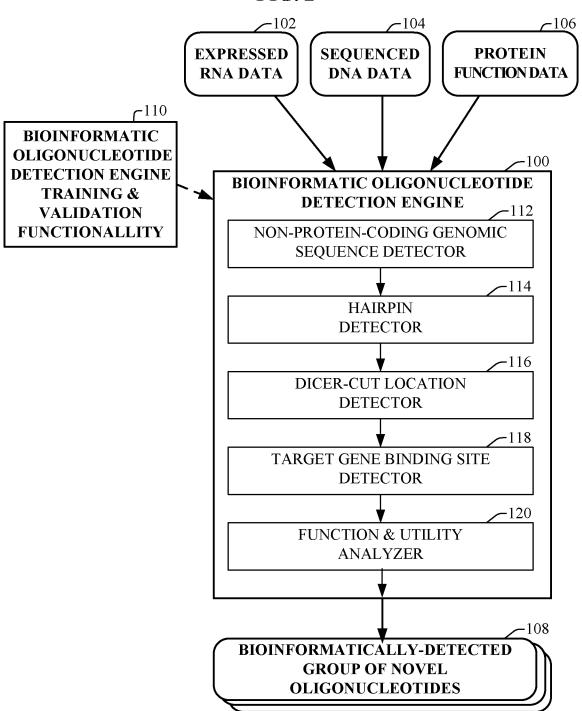


FIG. 2



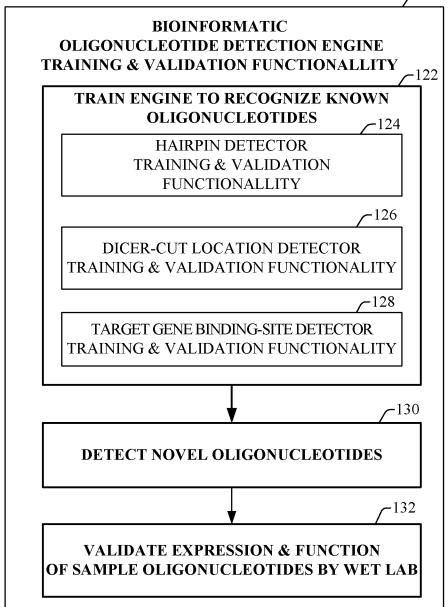


FIG. 4A

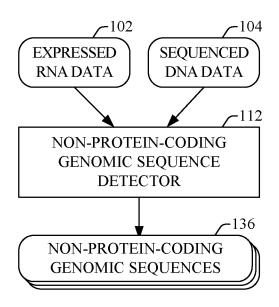


FIG. 4B

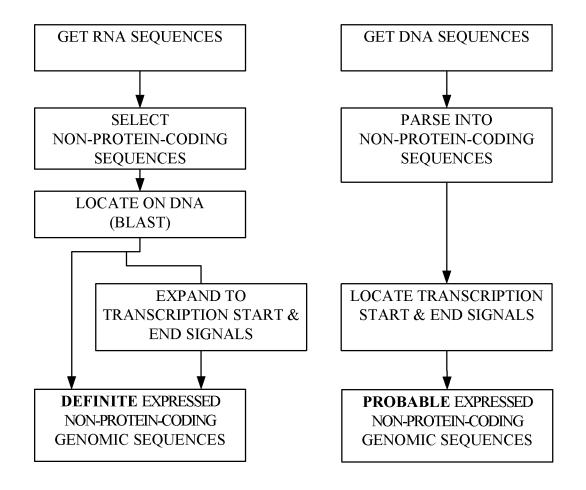


FIG. 5A

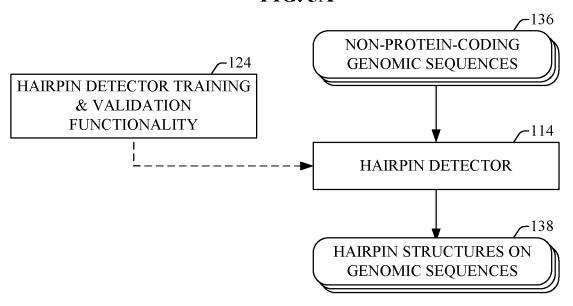


FIG. 5B

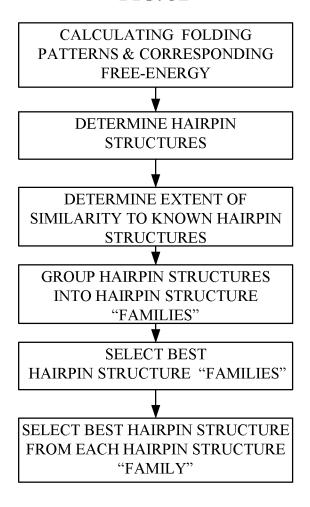


FIG. 6A

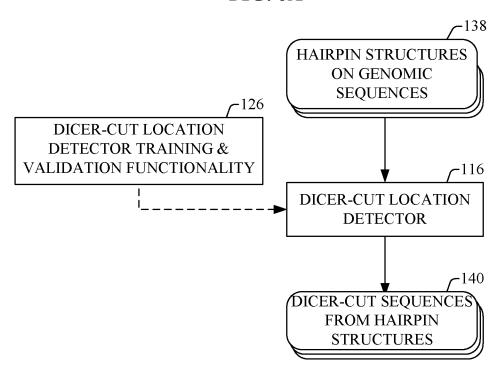


FIG. 6B

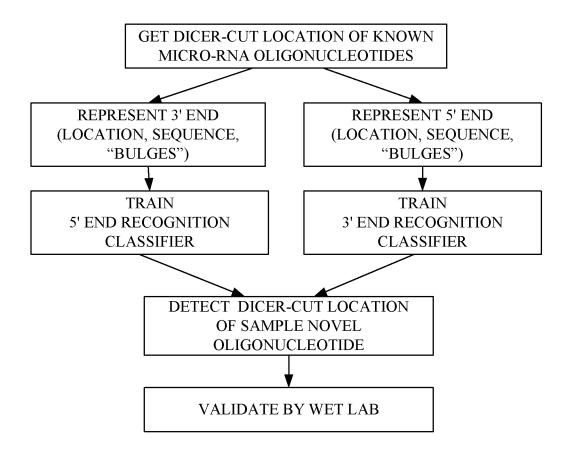
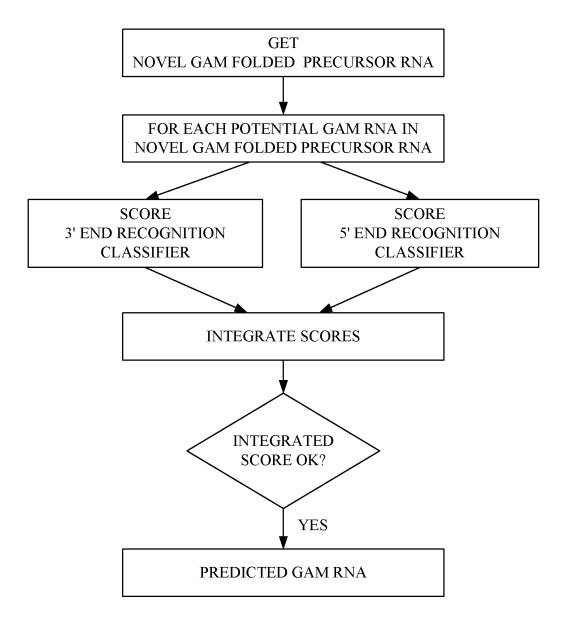
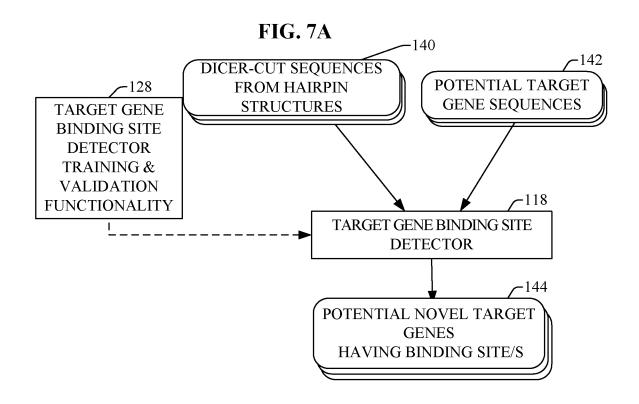
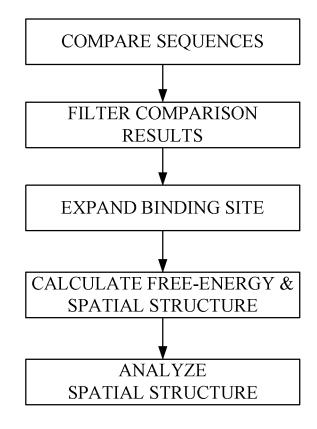


FIG. 6C





**FIG. 7B** 



**FIG. 8** 

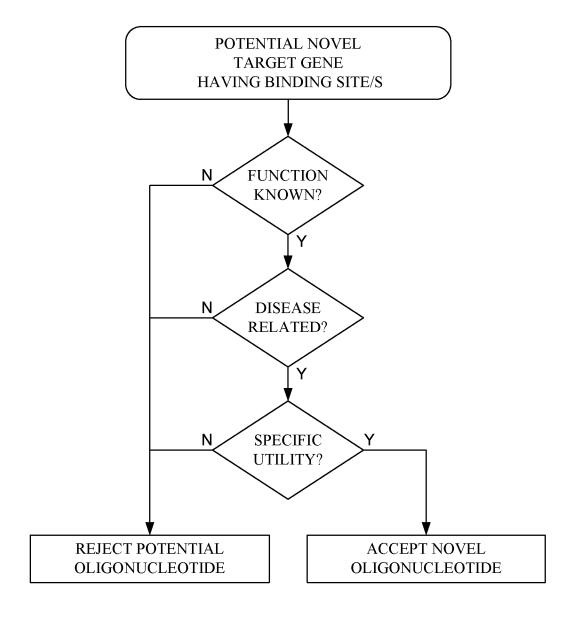
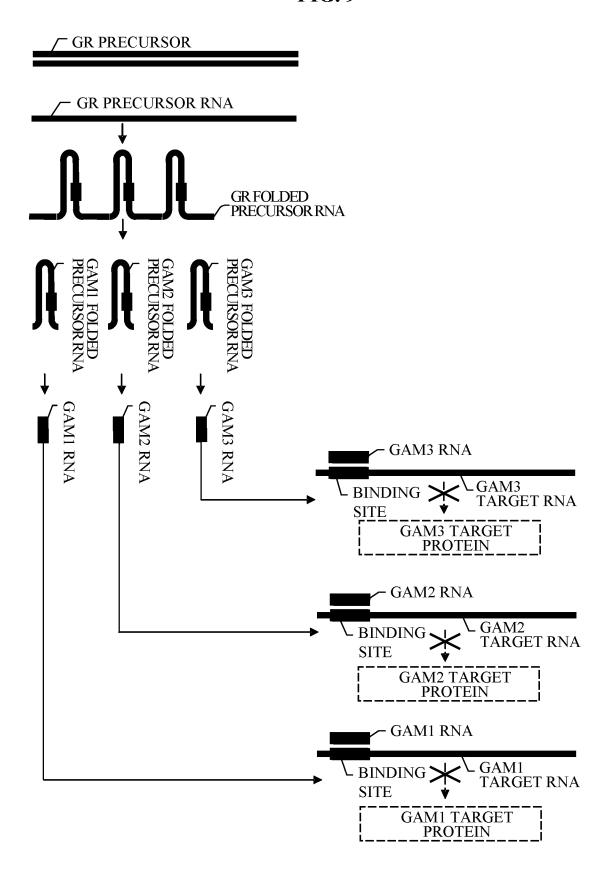
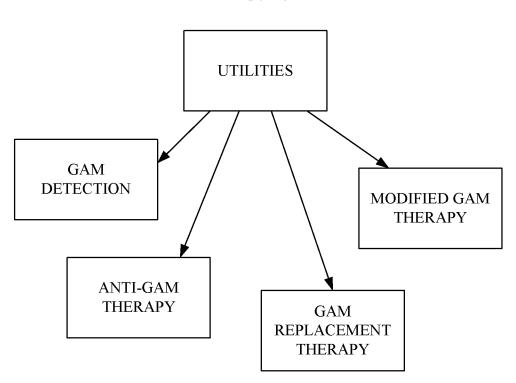


FIG. 9

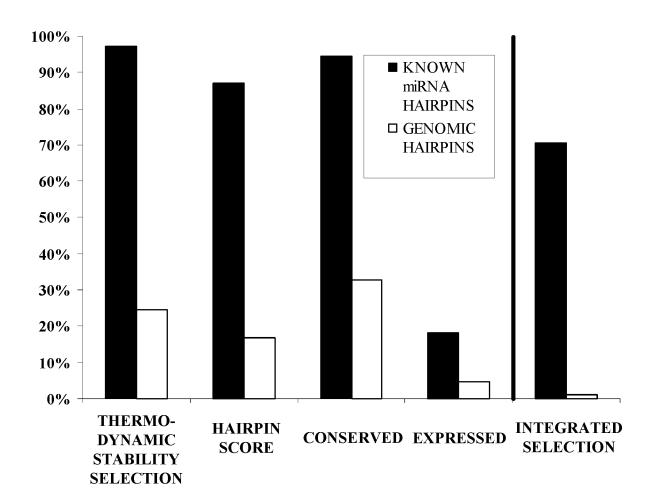


**FIG. 10** 

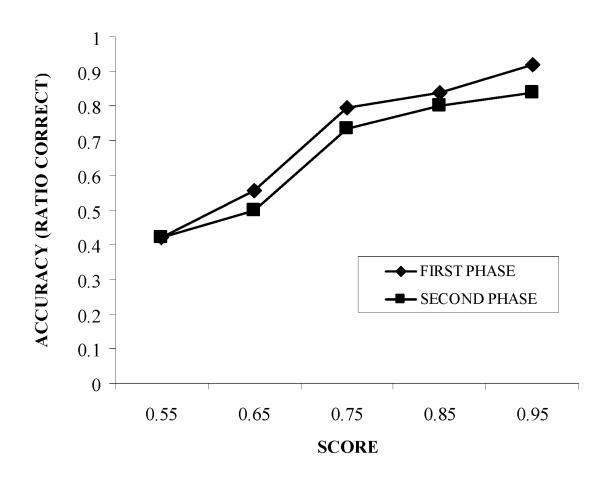


**FIG. 11A FIG. 11B** -GAM PRECURSOR -GAM PRECURSOR **GAM PRECURSOR GAM PRECURSOR** RNA RNA -DICER COMPLEX -DICER COMPLEX **GAM FOLDED GAM FOLDED** PRECURSOR RNA PRECURSOR RNA -GAMRNA -GAMRNA ANTI-GAM RNA **GAM GAM** -GAMRNA TARGET **TARGET** RNA RNA BINDING BINDING SITE SITE **GAM TARGET GAM TARGET PROTEIN PROTEIN** 

**FIG. 12A** 



**FIG. 12B** 



**FIG. 12C** 

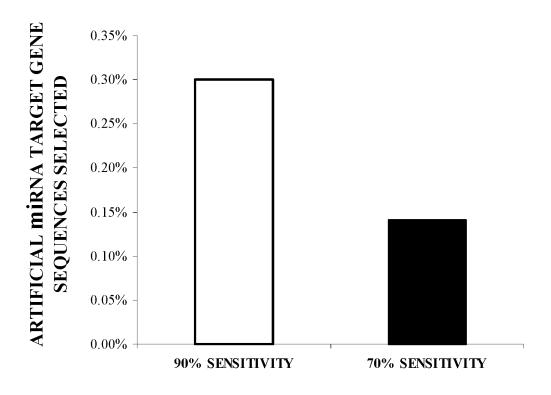
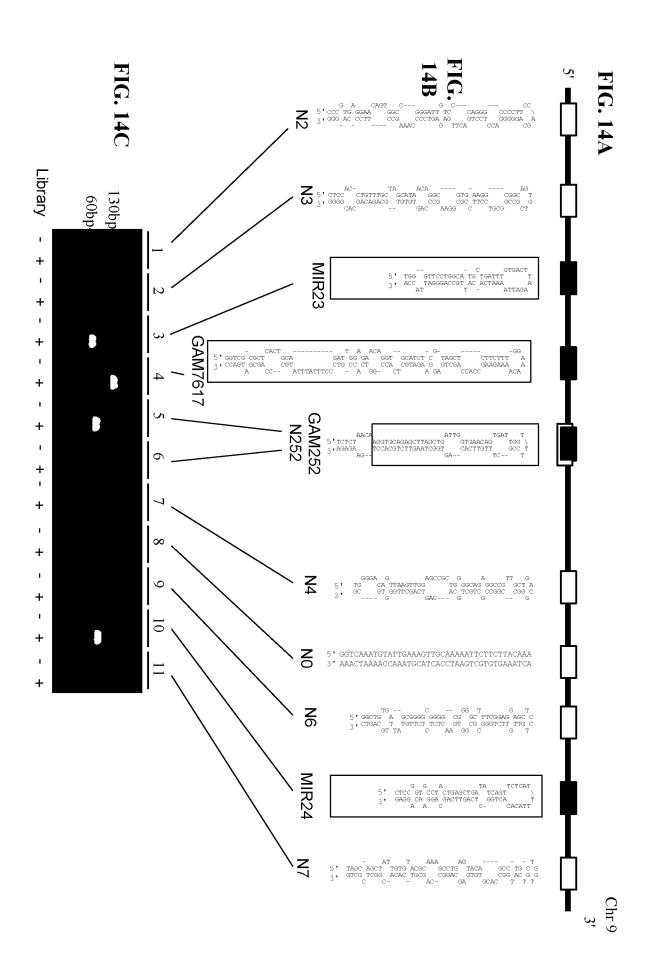


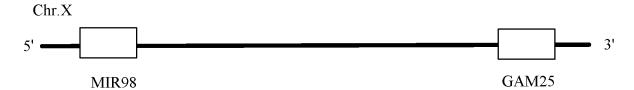
FIG. 13

AATTGCTTGAAC   CCAGGAAGTGGA   AATTGCTTGAACCCAGGAAGTGGA   25.4     ACTGCACTCC   AGCCTGGGC   ACTGCACTCCAGGCCTGGGCTAC   35166     ACTGCACTCC   CAGCCCGAGCACACA   ACTGCACTCCAGCCCGAGCACA   0   35166     ACTGCACTC   CAGCCCGAGCACACA   ACTGCACTCCAGCCCGAGCAA   0   35166     ACTGCACTC   CCCCTTGATCA   CTAGACTGCACCAGCCCTTGAGAC   CTAGACTGCACCAGCCTTGTTCA   0   4426-1     ACTGCACCA   CCCACCA   ACTGCACCTCCACCAGCCTTTTCA   0   4426-1     ACCTGCACAC   CCCACCA   ACTGCACCTCCACCAGCCTTTTCA   0   4426-1     ACCAGGCCAC   CCCACCA   ACTGCACCTCCACCAGCCTTTTCA   0   4426-1     AGCAGACCCA   CCCACGAA   ACTCACTTGAACGCTTCACCAGCTTTCA   0   4426-1     AGCAGACCCA   GCTTGAA   ACTCACTTGAACATCATGT   1   35199     AATTGCTTGAAC   CCCAAGAAGTGAA   AATCACTTGAACGCTAGAAGTTC   2   35199     AATTGCTTGAAC   CCCAAGAAGTGAA   AATCACTTGAACACCAGAAGTTC   2   35199     AATTGCTTGAAC   CCCAAGAAGTGAA   AATCACTTGAACACCAGAAGTTC   2   35199     AATTGCAGACCA   GACCAGAA   AATCACTTGAACCCAAGAAGTT   2   35199     AATTGCATGAACA   TAATGTGAA   AGCAAGAACCAGAGGTTC   2   35199     AATTCAGTTG   CCCATGTTT   AAGGAAAAAATTAATTGTGAAGTC   2   35199     AATTCAGTTG   CCCATGTTT   AAGGAAAAAAATTAATTGTGAAGTC   2   35199     AAGGCAAAGAAG   AATCACTTGAACGCCAAGAAGTC   2   35199     AAGGCAAAGAAG   AATCACTTGAACATTTAATTGTGAACTC   2   35199     AAGGCAAAGAAG   AATCACTTGAACATTTAATTGTGAACTC   2   35199     AAGGCAAAGAAG   AATCACTTGAACATTTAATTGTGAACTC   2   35199     AAGGCAAAGAAG   AATCACTTGAACATTTAATTGTGAACTCCATTTAAGTTCTGACCCA   AAGGAAAAAAATTTAATTGTGAACTCTTTAAGTTCTGACCCA   2   35199     AAGGCAAAGAAG   AATTCACTTTAAGTTCTGAACTCC   2   35284     AAGGCAAGAGT   TAAGAAAAAG   AATTCACTTTAAGTTCTGACTCC   2   35284     AAGGCAAGAAG   AATTCACTTTAAGAAGC   AAGGCAAGAAGAAGC   3   35281     AAGGCAAGAAG   AATTCACTTAAGAAGC   3   35281     AAGGCAAGAAG   AATTCACTTAAGAAGC   3   35281     AAGGCAAGAAG   AATTCACTTAAGAGCCAGAGGT   3   35281     AAGGCAAAGAAG   AATTCACTTAAGAGCCAGAGT   3   35281     AAGGCAAGAAG   AATTCACTTAAGAGCCAGAGT   3   35281     AAGGCAAGAAG   AATTCACTTAAGAGC   3   35281     AAGGCAAGAGT   TAAGAAAAG   AATTCACTTAAATTCCC	ROW	PRIMER SEQUENCE	SEQUENCED SEQENCE	PREDICTEDGAM RNA	DIST- ANCE	GAM NAME
ACTIGCACTICC   AGCCTIGGGC   ACTIGCACTICCAGCCTAGCCTAC   CACTIGCACTC   CACCTIGCACTC   CACCTIGCACTC   CACCTIGCACTC   CACCTIGCACTC   CACCTIGCACTCCAGCCAGA   CACTIGCACTICCAGCCCAGCAA   CACTIGCACTICCAGCCCCAGCAA   CACTIGCACTICCAGCCCCAGCAA   CACTIGCACTICCAGCCCCAGCAA   CACTIGCACTICCAGCCCCAGCCAA   CACTIGCACTICCAGCCCCACCTIGTIGTICA   CACTIGCAACCTCCACCACCTIGTIGTICA   CACTIGCAACCTCCACCACCTIGTIGTICA   CACTIGCAACCTCCACCACCTIGTICTCA   CACTIGCAACCTCCACCACCTIGTICTCA   CACTIGCAACCTCCACCACCTICACCACCTICACCACCTICACCACCACCTICACCACCACCTICACCACCACCTICACCACCACCTICACCACCACCTICACCACCACCTICACCACCACCTICACCACCACCACCACCACCACCACCACCACCACCACCAC	1*	ААТТӨСТТӨААС	CCAGGAAGTGGA	AATTGCTTGAACCCAGGAAGTGGA		25-A
CACTGCACTC CAGCCCGAGCAACA CTAGACTGAAG CTAGACTGAAG CTTCCTTGAGGAC CTAGACTGAAGCTCCTGAGGAA CTAGACTGAAGC CTAGACTGAAGC CTAGACTGAAGCTCCTTGAGGA CTAGACTGAAGC CTAGACTGAAGCTCCTGTGTGTCA CAAGTTTGAAGC CTCCACCA CTCCACCA CTCCACCA CTCCACCAC CTCCACCA CTCTAAGAGAAGCTCCCACCACCCTGTTGTTCA CTCTAAGAGAAAG GGAGTTCAGA CTCCACCAC CCCAAGAAGTGAA CTCCACCACACCTCCACCACCCTGTTCTTCA CTCTAAGAGAAAG GGAGTTCAGA CCCAAGAAGTGAA CTCTAAGAAAGGAAGTTCAGA CCCAAGAAGTGAA CCCAAGAAGTGAA CCCAAGAAGTGAA CCCAAGAAGTGAA CCCAAGAAGTGAA CCCAAGAAGTGAA CCCAAGAAGTGAA CCCAAGAAGTGAA CCCAAGAAGTAA CCCAAGAAGTAA CCCAAGAAGTT CAAGTTCAGA CCCATGTTT CTAAGACCGAAA CTCACTGAAGCCCAAGAAGTC CCCATGTTT CAAGGCAAAAAAAATTAATGTGAAGT CTAAGAAAAAA CTCACTGAAGCCCAAGAAGTC CCCATGTTT CTAAGAAAAAAAAATTAATGTGAAGTC CCAAGAAGGAAGC CTCCTTGAAG CTCCTTGAAG CTCCTTGAAG CTCCTTGAAG CTCCTTGAAGC CTCCAGGAAGC CTCCAGGAAGC CTCCAGGAAGC CTCCAGGAAGC CTCCAGGAAGC CTCCAGGAAGC CTCCAGGAAGC CTCCAGGAAGC CTCAAGAAGG AGTTTCTCGC TTCAAGCCTCTGAGC CCCAGGAAGC CCCAGGAAG AGTTTCTCAGT CCAAGAAAG AGTTAGTTAAGTTCTCAGTATAGT CCAAGAAGT CCAAGAAGT CCAAGAAAG AGTTTGTCAGT CCACCAGCA CACTAAA CTCAAGAAGG CCCACGAGA CCCACGAAC CCCACGAAG CCCACGAAC CCCACCAGC CCCACCAGC CCCACCAGC CCCACCAGC CCCACCAGC CCCACCAGC CCCACCAGC CCCACCACC CCCACCACC CCCACCACC CCCCCCCACC CCCCCC	2*	ACTGCACTCC	AGCCTGGGC	ACTGCACTCCAGCCTGGGCTAC	0	351661-A
CTAGACTGAAG         CTCCTTGAGGAC         CTAGACTGAAGCTCCTTGAGGA         0           GAAGTTTGAAG         CCTGTTGTTCA         GAAGTTTGAAGCCTGTTGTTCA         0           TCACTGCAAC         CTCCACCA         GAAGTTTGAAGCCTGCACCACGTG),(TC         0           TCTAAGAGAAAG         CACCACCA         ACTGCAACCTCCACCACCACTTC,         0           TCTAAGAGAAAG         GAAGTTCAGA         ACTGCAACACCACCACCACCACCACCACCACCACGACTTGAACTC         0           GGGCAGTGGAA         GCCAAGAAGGAACCCCAAGAAGTGATGT         1           AATTGCTTGAAC         CCAAGAAGTGGA         ACTCACTTGAACCCCAAGAAGTG         2           AGCAGACACA         AGCAAGAAGAGAACCCCAAGAAGT         2           AGGCAAGAAGAAT         TAATGTGAA         AGGCAAGAAGAACCCCAAGAAGT         2           AGGCAAGAAAT         TAATGTGAA         AGGCAAGAAGAAAAATAATTAATGTGAAGTC         2           AGGGAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	ω	CACTGCACTC	CAGCCCGAGCAACA	CACTGCACTCCAGCCCGAGCAA	0	351946-A
GAAGITIGAAG   CCTGTIGTICA   GAAGITIGAAGCCTGTIGTICA   TCACTGCAAC   CTCCACCA   ACTGCAACCTCCACCAGCCT), (TC ACTGCAAC   CTCCACCA   ACTGCAACCTCCACCAGCCT), (TC ACTGAAAGAAAG GAAGTTCAGA   ACTGCAACCTCCACCAGCCT), (TC ACTGAAAGAAAGAAAGAAAGAAGAAGTTCAGA   ACTGCAACCTCCACCAGCCT), (TC ACTGAAGAAAGAAAGAAAGAAAGTTCAGAACCTCCACCAGCCT), (TC ACTGAAGAAAAGGAAAGTTCAGAA   ACTGCAACCTCCACCAGCCT), (TCTAAGAAAAGGAAAGTTCAGAA   ACTCAACTGAAAGGAAAGTTCAGAA   ACTCAACTGAAAGAAAGAAAGTTCAGAACCTGAAAGAAGTTCAGAACCTGAAAGAAA	4	CTAGACTGAAG	СТССТТВАВВАС	CTAGACTGAAGCTCCTTGAGGA	0	352759-A
TCACTGCAAC TCACCGACA TCACGTGCAAC TCACGTGCAAC TCTAAGAGAAG GAAGTTCAGA GCTGGAA GCTGGAAC TCTAAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAG	5	GAAGTTTGAAG	сствттвттся	GAAGTTTGAAGCCTGTTGTTCA	0	4426-A
TCACTGCAAC	D.			(TCACTGCAACCTCCACCACGTG),(TC		(357950-
TCTAAGAGAAG   GAAGTTCAGA   TCTAAGAGAAGTTCAGA   GGGCAGTGGA   GCTGGAA   GGGCAGTGGAAGTTCAGA   GGGCAGTGGAAGTTGAAC   CCAAGAAGTGGAA   GATCACTTGAACCCAAGAAGTG   2   AGCAGCCCA   GGGTTTTGT   AGCAAGACCCAAGAAGTG   2   AGCAAGACC   GACCAGA   AGCAAGACCAAGAAGTT   2   AGGCAAAGAAT   TAATGTGAA   AGCAAGACCAAGAAGTC   2   AGGGAAAAGAAT   TAATGTGAAG   AGGCAGAAGAGGATTTTTTTTTTTTTTTTTTTTTTTTTT	C	TCACTGCAAC	CTCCACCA	ACTGCAACCTCCACCAGCCT)	0	A),(352721-A)
GGGCAGTIGAA   GCTIGGAA   GGGCGTIGGAGCTIGGAATGATGT   1     AATTGCTTGAAC   CCAAGAAGTIGGA   AATCACTTGAACCCAAGAAGTIG   2     AGCAGCCCA   GGGTTTTGT   AGCAAGACCCAAGAAGTIG   2     AGCCAGACGC   GACCAGA   AGCAAGAACCAAGAAGTT   TAATGTGAAC   AGGCAAGAAGAACT   TAATGTGAAC   AGGCAAGAAGAATTAATGTGAAGTC   2     AGGGAAAAGAAT   TAATGTGAAG   AGGAAAAAATTAATGTGAAGTC   2     AGGGAAAAGAAT   TAATGTGAAG   AGGAAAAAATTAATGTGAAGTC   2     AGGGAAAAGAAT   TAATGTGAAG   AGGAAAAAATTAATGTGAAGTC   2     AGGGAAAAGAAT   TAATGTGAGG   AGGAAAAAATTAATGTGAAGTC   2     ATTCAGATGGT   TAAGTTCTGC   TTCTAGACCTGATGTTTTTATTT),   2     CTAGACTGAAG   CTCCTTGAGG   CTCGATGGTTAAGTTCTGCT   2     TTCAGAGTTGGT   TAAGTTCTGC   TTCAAGTGTTAAGTTCTGCT   2     AGCAGCCCA   GAAGGAAGG   AGTTTGTGTAAGTTCTGCT   2     AGCAGCCCA   GAAGGAAAG   AGTTTGTGTAAGTTCTGCT   3     AGTTTGCCTTG   GAAGGAAGGAAGGAAGAAGCTTGAAGT   CTCAAGACTTGAAGTTCTCGGCCTGTG   3     AGTTGTGAAG   GGTCCGT   TGGAGCAGAAGGTTGGTCAGTATAG   3     AGGGCAAGTGA   CTCAGAC   CTCAAGACTTGAAGTCCC   3     TGGAGAAGTT   CACTAAA   CTCAGGTGGTGGATCTAAGTTGAAGTCCC   3     TGGAGAAGTT   CACTAAA   CTCAGGTGGTGGATCTAAGTTGTAAGTTGGAACCTTAAGTTTGGAAAGTTTGGAACCTTAAGTTGGTTAAGTTTGGAAAAGTTTGTAAGACCCCCCC   3     TGGAGAAGTT   CACTAAAA   CTCAAGATGTTGTAAGATCCC   3     TGGAGAAGTT   CACTAAAA   CTCAGGTGGTGGTTGAAGTCCC   3     TGGAGAAGTT   CACTAAAA   CTCAGGTGTTATGGTTAAGTTAAGTTTATGTTATGTTAT	7*	DAAABABATOT	GAAGTTCAGA	TCTAAGAGAAAGGAAGTTCAGA	0	A-05628
AATTGCTTGAAC         CCAAGAAGTGGA         AATCACTTGAACCCAAGAAGTG         2           AGCAGCCCA         GGGTTTTGT         AGCAAGACCAAGAGTGTTTTTTTTTTTTTTTTTTTTTTT	8	<b>ASSLEAYSES</b>	GCTGGAA	GGGCGTGGAGCTGGAATGATGT	1	A-96615E
AGCAGCCCA     GGGTTTTGT     2       AGGCAAGACG     GACCAGA     AGGCAGAGAGACCAGAGACT     2       AGGGAAAGAAT     TAATGTGAA     AGGCAGAGAGACCAGAGACT     2       AGGGAAAGAAT     TAATGTGAG     AGGAAAAAATTAATGTGAAGTC     2       AGGGAAAGAAT     TAATGTGAG     AGGAAAAAAATTAATGTGAGTC     2       AGGGAAAGAATTAATGTGAGTC     2     2       AGGGAAAAAATTAATGTGAGTC     2     2       AGGGAAAGAATTAATGTGAGTC     2     2       AGGGAAAGAATTAATGTGAGTC     2     2       ATCAGTTG     CCCATGTTT     (ATTGTTGCCCATGTTTTATTT),     2       ATTCAGATGGT     TAAGTTCTGC     CTGGACTGAGCTCCTTGAGGCC     2       TTCAGAGTGGT     TAAGTTCTGC     TTCAAGTTGTTAAGTTCTGCTT     2       AGCAGCCCA     GAAGGAAGC     AGGCCAAGAAGGAAGCAGAGG     3       AGTTGAGAGGGTGGAGCCTGAGGT     3     3     3       AGTGAGAGG     AGTTAGGAAGAGTTGTAAGATAG     3       ATTAGGAGAGTTGTAAGAAGC     3     3       ATTAGGAGAGGTTGTAAGAAGC     3     3       AGGCAGGAGGTTGGAATCCATTAGACCCTTC     3     3       AGGCAGGAGGTTGTAAGACCTTCAGACCCTTCCACTTAATTTTG     3     3       TGAAGAGGTT     CACTAAA     CTCAGCTCATCCACTAATTTTGGTTA     3       TGAAGAGGTT     CCATTATTTTG     TGATTAGATCCATTTTTGGT	9	ААПССПСААС	CCAAGAAGTGGA	AATCACTTGAACCCAAGAAGTG	2	351874-A
AGGCAAGACG     GACCAGA     AGGCAGAGAGACCAGAAGACT     2       AGGGAAAGAAT     TAATGTGAA     GGGAAATAATTAATGTGAAGTC     2       AGGGAAAGAAT     TAATGTGAAG     AGGAAAAAATTAATGTGAAGTC     2       AGGGAAAAGAATTAATGTGAAGTC     2     2       AGGGAAAAAATTAATGTGAAGTC     2     2       AGGGAAAAAAATTAATGTGAAGTC     2     2       AGGGAAAAAATTAATGTGAAGTC     2     2       ATTCAGTTG     (ATTGTTGCCCATGTTTTATTT),     2       ATTCAGATGTTGAAG     CCTCCTTGAAGG     CTGGACTGAGCTCCTTGAGGCC     2       TTCAGAAGTGT     TAAGTTCTGC     TTCTGATGGTTAAGTTCTGCTT     2       AGCAGCCCA     GAAGGAAAG     AGGCCAAGAAGGAAGCAGAGG     3       AGTTCAGAAGGTAAAGC     AGGCCAAGAAGGAAGCAGAGG     3       ATTCAGAGGGTG     GAGTGCTAA     ATTAGGAGAGTTGGTAAGT     3       ATGGTGGGAG     AGTTTGTCAGT     TGGAGGAGGTTGTCAGTATAG     3       ATGGTGGAA     TCTAGAC     CCCGGGTGGAGCCTGGGCTGTG     3       CCCAGGAAG     TCTAGAC     CTCAGCTGAACTCACTAGATCCACTTAGACAGAC     3       TGGACAGTGA     TCTAGCTGAAA     CTCAGCTGAATTTTGGTAA     3       TGGACTGCAAC     CCCTAATTTTGGTTACAGTTGTTAGGTTAA     3       TGGATAGATCCACTTAATTTTGGTAA     TGATAGATCCATATTTTTGGTAA     3       TGACTGCAAC     CTCCCCCCTCCCCCTCCC	10	AGCAGCCCA	е т петт петт петт петт петт петт петт	AGCAAGACCAGGGTTTTGTGTT		352083-A
AGGGAAAGAAT     TAATGTGAA     GGGAAATAATTAATGTGAAGTC     2       AGGGAAAGAAT     TAATGTGAG     AGGAAAAAATTAATGTGAAGTC     2       AGGGAAAGAATT     AGGAAAAAAATTAATGTGAGTC     2       ATTCAGTTG     (ATTGTTGCCCATGTTTTATT),     2       ATTCAGATTG     CCCATGTTT     (TATTCATTGCCCATGTTTTGTGA)     2       CTAGACTGAAG     CTCCTTGAAGG     CTGGACTGAAGCTCCTTGAAGGTCCTTGAAGGCC     2       TTCAGAGTGGT     TAAGTTCTGC     TTCCAAGTGTTAAAGTTCTGCTT     2       AGCCAGCCCA     GAAGGAAGC     AGGCCAAGAAGGAAGCAGAAGCAGAGC     2       AGTTTGCCTTG     TAAGAAAAG     AGTTTGTGTAAAGTTCTGCTTAAGTTCTGCTT     2       ATCAGAGGGTG     GGTCCTAA     ATTAGGAGAGAGGAAGCAGAGC     3       ATGAGAGAAG     AGTTTGTCAGT     TGGAAGAGAGTTTGTCAGTATAG     3       ATGAGACAGG     AGTTAGGAGAGAGGTTGTGTAAGTTAGG     3       CCCAGGAAG     TCTAGACCTGGGC     CCCGGGTGGAGCCTGGGCCTGTG     3       GGGCAGTGGA     TCTAGAC     CTCAGCTGAATCTAGACAGAC     3       TGGAAAGTT     GGTCATAAA     CTCAGCTGAATCTAGACTAGATCCC     3       TGGAAAGTT     GGTTGTACAGT     GGAATGGTGATCTATATTTGGTAA     3       TGGAGAGGTT     GGTTGTACAGT     TGATTGACACTTCACTTCAG     3       TGGAGAGGTT     GTTTAGATCCACTTACATTTTGGTAA     3       TGACTGCAAC     CTC	11	AGGCAAGACG	GACCAGA	AGGCAGAGAGGACCAGAGACT	2	351944-A
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ATTCAGTTG ATTCAGTTG ATTCAGTTG ATTCAGTTG CCCATGTTT CTAGACTGAAG CTCCTTGAGG CTCCTTGAGG CTCCTTGAGG CTCCTTGAGG CTCCTTGAGG CTCCTTGAGG CTCCATGTTTCTGTCA TTCAGAGTGGT TAAGTTCTG TTCAGAGTTCTGC TTCAGAGTGGT TAAGTTCTGC TTCAAGTTCTGCATGTTAAGTTCTGCCTT AGCAGCCCA AGCAGCCCA AGCAGCCCA AGCAGAAGC AGTTTGTAAGAAAGC AGTTTGTAAGAAAGC AGTTTGTCAAGT ATTCAGAAGTAAAAGC AGTTTGTCAAGT ATTCAGAAGTAAAAGC AGTTTGTCAAGT AGCAGGAAG AGTTTGTCAGT AGGAAAAAGC TGGAGAAGC TGGAGCCTGGGC CCCAGGAAGC TGGAGCCTGGGC CCCAGGAGGTTGTCAGTATAG TCAAGCTCATTC CACTAAA CCCAGGAGGTT CCACTAAAA TGGAGAGGTT CCACTAAAA TGGAGAGGTT CCACTAAAA TGGAGAGGTT CCACTAAAA TGGAGAGGTT CCACTAATTTTG TGGAGAGCTT CCACTAACT TGGAGAGCT TGGAGAGCT TGGAGAGCT TGGAGAGCT TGGAGAGCT TGGAGAGCT TGGAGAGCT TGGACAGTTGTACAGTTAG TGGAGAGCT TGGAGAGCT TGGACAGTT TGGAGAGCT TTCACTGCAAC TTCACTGCAC TTCACTGCAAC TTCACTGCAAC TTCACTGCAAC TTCACTGCAAC TTCACTGCAAC TTCACTGCACC TTCACTGCACCTTCACCTTCACC TTCACTGCACCTCACCT	13	AGGGAAAGAAT	TAATGTGAG	AGGAAAAAAATTAATGTGAGTC	2	352649-A
ATTCAGTTG CCCATGTTT CTAGACTGAAG CTCCTTGAGG CTAGACTGAAG CTCCTTGAGG CTAGACTGAGC CTAGACTGAAG CTCCTTGAGG CTAGACTGAGC CTAGACTGAGC CTAGACTGAGC CTAGACTGAGC CTCCATGAGG CTCCATGAGC CTCCAGAGCTCC TTCAGAGTGGT TAAGTTCTG TTCAGAGTGGT TAAGTTCTGC TTCAGAGTGTTTAAGTTCTGCTT  AGCAGCCCA AGAGAAAG AGTTTGCCTTG TAAGAAAAG AGTTTGTCAAA ATCAGAGGGTG AGTTCTCAGAC AGTTTGTCAGT ATTAGGAAGGAAAAG AGTTTGTCAGT ATTAGGAAGGAAAAG AGTTTGTCAGT AGGCAGTGGA AGTTTGTCAGT AGGCAGTGGA CCCAGGAAG TCTAGAC TCTAGAC TCTAGAC TCTAGAC TCTAGAC TCTAGAC TCTAGAC TCTAGAC TTGGAAGGTT CCATTTTTG TGGAAGGTT TGGAAGCTCCACCTTCCG TTCACTGCAAC TCACTGCAAC TCACCC TCACCC TCACCTCCACC TCACCTCCACCTTCCG O  TCACTGCAAC TCACTGCAAC TCACTGCAAC TCACTGCAAC TCACTGCAAC TCACTGCAAC TCACTGCAAC TCACTGCACC TCACCTTCCG O  TCACTGCAAC TCACTGCACC TCACTGCAAC TCACTGCAAC TCACTGCAAC TCACTGCAAC TCACTGCAAC TCACTGCAAC TCACTGCACC TCACTGCACC TCACTGCACC TCACTGCACC TCACTGCACC TCACTGCACCTTCCACCTTCCG TCACTGCACCTTCCACCTTCCG TCACTGCACCTCCACCTCCACCTTCCACCTTCCACCTTCCACCTTCCACCTTCCACCTTCCACCTTCCACCTTCCACCTTCCACCTTCCACCTCCACCTCCACCTCCACCTCCACCTCCACCTCCACCTCCACCTCCACCTCCACCTCCA	14			(АППЕТСССАТЕППТАПП),		A),(352957-
CTAGACTGAAG CTCCTTGAGG CTCCTTGAGG CTCCTTGAGGC CTCCAGAGTGGT TTCAGAGTGGT TTCAGAGTGGT TTCAGAGTGGT TTCAGAGTGGT TTCAGAGTGGT TTCAGAGTGTTAAGTTCTGCA TTCAGAGTGGT TTCAGAGTGTTAAGTTCTGCCA TTCAGAGTGGTTAAGTTCTGCCTT AGCAGCCCA AGCAGCCCA AGCAGCCCA AGGAAAAG AGTTTGCCTTG AGGAAAAG ATCAGAAGGGTG CCCAGGAAG AGTTTGTCAAG AGTTTGTCAAG AGTTTGTCAAG AGTTTGTCAAG AGTTTGTCAAG CCCAGGAAG AGTTTGTCAGT TGGAGGAGGTTGTCAGTAAG AGGCCAGTGGA AGGCCAGTGGA AGGCCCTGGGC AGGCAGTGGA CCACTAAAA TCAAGCTCATTC ACCTAAAA TGGAGAGTT CCACTAAAA TGGAGAGTT CCACTAATTTTG TGGAAAGTT TGGAGAGTT TGGAGAGCTTCAGACCTTCCG TCACTGCACC TCCACC TCCACC TCCACC TCCACC TCCACC TCCACC TCCACCTCCACCTTCCACCTTCCG O		АПСАСПС	СССАТСТТ	(ТАПСАП СССАТСТПСТСА)	2	A,352960-A)
TICAGAGTIGGT TAAGTICTIG TICTGATGGTTAAGTICTGTCA 2 TICAGAGTTGGT TAAGTICTGC TICAAGTGTTTAAGTICTGCTT 2 AGCAGCCCA GAAGGAAGC AGGCCAAGAAGGAAGCAGAGG 3 AGTITGCCTTG TAAGAAAAG AGTTGTGTAAGAAAAGC AGAGGTGTTGCTTAAGTTTGCCTTG TAAGAAAAG AGTTTGTGTAAGAAAAGC 3 ATCAGAGGGTG GGTGCTAA ATTAGGAAGAAAAAGC 3 CCCAGGAAG TGGAGCCTGGGC CCCCAGGAGGTTGTCAGTATAG 3 GGGCAGTGGA TCTAGAC GTGAAA CCCAGGAAGTTGTCAGTACCCTTC 3 GGGCAGTGGA TCTAGAC CACTAAA CTCAGCTCATCTAGAATCCC 3 TGGAAAGTT GGTTGTATGGTT GGAATCCACTTAAATCCC 3 TGGAAAGTT CCATATTTTG TGATAGATCCATATTTTGGTAA 3 TGGAGAGTT CCATATTTTG TGATAGATCCATATTTTGGTAA 3 TGGAGAGTT CCATATTTTG TGATAGATCCACCTTCCG 0 TCACTGCAAC CTCCACC TCACTCCACCTTCCG 0	15	CTAGACTGAAG	СТССТТВАВВ	CTGGACTGAGCTCCTTGAGGCC	2	352288-A
TTCAGAGGTGGTTAAGTTCTGCTTCAAGTGTTTAAGTTCTGCTT2AGCAGCCCAGAAGGAAGCAGGCCAAGAAGGAAGCAGAGG3AGTTTGCCTTGTAAGAAAAGAGTTTGTGTAAAGAAAGCAAAAGC3ATCAGAGGGTGGGTGCTAAATTAGGAAGATGGGTGCTAAGT3ATGGTGGGAGAGTTTGTCAGTTGGAGGAGGTTTGTCAGTATAG3CCCAGGAAGTGGAGCCTGGGCCCCGGGTGGAGCTTGGCAGTATAG3GGGCAGTGGATCTAGACAGGGCAGGAGGTCCGTCCCTTC3GGGCAGTGGATCTAGACGTGACAGTGAATCTAGACAGAC3TCAAGCTCATTCCACTAAACTCAGCTCATCCACTAAATCCC3TGGAAAGTTGGTTGTACAGTGGAATGGTGGTTGTACAGTGA3TGGAGAGTTCCATATTTTGGGAATGGTGGTTGTACAGTGAA3TGGAGAGTTGTTGTACAGTTGATAGATCCACATATTTTGGTAA3TCACTGCAACCTCCACCTCACTGCAACCTTCCACCTTCCG0	16	TTCAGAGTGGT	TAAGTTCTG	ТСТВАТВЕТТААВТТСТВТСА		353875-A
AGCAGCCCAGAAGGAAGCAGGCCAAGAAGGAAGCAAGAG3AGTTTGCCTTGTAAGAAAAGAGTTTGTGTAAGAAAAGC3ATCAGAGGGTGGGTGCTAAATTAGGAGAGTGGGTGCTAAGT3ATGGTGGGAGAGTTTGTCAGTTGGAGGAGAGTTTGTCAGTATAG3CCCAGGAAGTGGAGCCTGGGCCCCGGGTGGAGCCTGGGCTGTG3GGGCAGTGGAGGTCCGTAGGGCAGGAGGTCCGTCCCTTC3GGGCAGTGGATCTAGACGTGACAGTGAATCTAGACAGAC3TCAAGCTCATTCCACTAAACTCAGCTCATCCACTAAATCCC3TGGAAAGTTGGTTGTATGGTTGGAATGGTGGTTGTATGGTTG3TGGAGAGTTCCATATTTTGTGATAGATCCATATTTTGGTAA3TGGAGAGTTGTTGTACAGTTGATAGATCCACCTTCCG0TCACTGCAACCTCCACCTCACTGCAACCTTCCACCTTCCG0	17	TTCAGAGTGGT	TAAGTTCTGC	ТСААСТСТТААСТТСТССТТ		351940-A
AGTTTGCCTTGTAAGAAAAGAGTTTGTGTAAGAAAAGC3ATCAGAGGGTGGGTGCTAAATTAGGAGAGTGGGTGCTAAGT3ATGGTGGGAGAGTTTGTCAGTTGGAGGAGGTTTGTCAGTATAG3CCCAGGAAGTGGAGCCTGGGCCCCGGGTGGAGCCTGGGCTGTG3GGGCAGTGGAGGTCCGTAGGGCAGGAGCCTGGGCTGCCTC3GGGCAGTGGATCTAGACGTGACAGTGAATCTAGACCAGAC3TCAAGCTCATTCCACTAAACTCAGCTCATCCACTAAATCCC3TGGAAAGTTGGTTGTATGGTTGGAATGGTGGTTGTATGGTTG3TGGAGAGTTCCATATTTTGTGATAGATCCATATTTTGGTAA3TGGAGAGTTGTTGTACAGTTGATAGATCCACCTTCCG0	18	AGCAGCCCA	GAAGGAAGC	AGGCCAAGAAGGAAGCAGAGG	3	352496-A
ATCAGAGGGTG       GGTGCTAA       ATTAGGAGAGTGGGTGCTAAGT       3         ATGGTGGGAG       AGTTTGTCAGT       TGGAGGAGAGTTTGTCAGTATAG       3         CCCAGGAAG       TGGAGCCTGGGC       CCCGGGTGGAGCCTGGGCTGTG       3         GGGCAGTGGA       TCTAGAC       AGGGCAGTGAATCTAGACCAGAC       3         TCAAGCTCATTC       CACTAAA       CTCAGCTCATCCACTAAATCCC       3         TGGAAAGTT       GGTTGTATTGGTT       GGAATGGTGGTTGTATGGTTG       3         TGGAGAGGTT       CCATATTTTG       TGATAGATCCATATTTTGGTAA       3         TGGAGAGTT       GTTGTACAGT       TGATAGATCCATATTTTGGTAA       3         TCACTGCAAC       CTCCACC       TCACTGCAACCTCCACCTTCCG       0	19	АСППСССПС	TAAGAAAAG	AGTTTGTGTAAGAAAAGC	3	352518-A
ATGGTGGGAG       AGTITIGTCAGT       TIGGAGGAGAGTITIGTCAGTATAG       3         CCCAGGAAG       TIGGAGCCTGGGC       CCCGGGTGGAGCCTGGGCTGTG       3         GGGCAGTGGA       GGTCCGT       AGGGCAGGAGGTCCGTCCCTTC       3         GGGCAGTGGA       TCTAGAC       GTGACAGTGAATCTAGACAGAC       3         TCAAGCTCATTC       CACTAAA       CTCAGCTCATCCACTAAATCCC       3         TGGAAAGTT       GGTTGTATGGTT       GGAATGGTGGTTGTATGGTTG       3         TGGAGAGTT       CCATATTTTG       TGATAGATCCATATTTTGGTAA       3         TGGAGAGTT       GTTTGTACAGT       TGACTGCAACCTCCACCTTCCG       0	20	ATCAGAGGGTG	GGTGCTAA	ATTAGGAGAGTGGGTGCTAAGT	3	352511-A
CCCAGGAAGTGGAGCCTGGGCCCCGGGTGGAGCCTGGGCTGTG3GGGCAGTGGAGGTCCGTAGGGCAGGAGGTCCGTCCCTTC3GGGCAGTGGATCTAGACGTGACAGTGAATCTAGACAGAC3TCAAGCTCATTCCACTAAACTCAGCTCATCCACTAAATCCC3TGGAAAGTTGGTTGTATGGTTGGAATGGTGGTTGTATGGTTG3TGGAGAGTTCCATATTTTGTGATAGATCCATATTTTGGTAA3TGGAGAGTTGTTTGTACAGTTGACTGCAACCTCCACCTTCCG0	21	<b>SADDDTDDTA</b>	AGTTTGTCAGT	TGGAGGAGAGTTTGTCAGTATAG	3	353484-A
GGGCAGTGGAGGTCCGTAGGGCAGGAGGTCCGTCCCTTC3GGGCAGTGGATCTAGACGTGACAGTGAATCTAGACAGAC3TCAAGCTCATTCCACTAAACTCAGCTCATCCACTAAATCCC3TGGAAAGTTGGTTGTATGGTTGGAATGGTGGTTGTATGGTTG3TGGAGAGTTCCATATTTTGTGATAGATCCATATTTTGGTAA3TGGAGAGTTGTTTGTACAGTTGGGTTTTGTTTGTACAGTGTA3TCACTGCAACCTCCACCTCACTGCAACCTTCCACCTTCCG0	22	CCCAGGAAG	TGGAGCCTGGGC	СССС		351990-A
GGGCAGTGGATCTAGACGTGACAGTGAATCTAGACAGAC3TCAAGCTCATTCCACTAAACTCAGCTCATCCACTAAATCCC3TGGAAAGTTGGTTGTATGGTTGGAATGGTGGTTGTATGGTTG3TGGAGAGTTCCATATTTTGTGATAGATCCATATTTTGGTAA3TGGAGAGTTGTTTGTACAGTTGGGTTTTGTTACAGTGTA3TCACTGCAACCTCCACCTCACTGCAACCTTCCACCTTCCG0	23	GGGCAGTGGA	GGTCCGT	AGGGCAGGAGGTCCGTCCCTTC	3	A-088656
TCAAGCTCATTCCACTAAACTCAGCTCATCCACTAAATCCC3TGGAAAGTTGGTTGTATGGTTGGAATGGTGGTTGTATGGTTG3TGGAGAGTTCCATATTTTGTGATAGATCCATATTTTGGTAA3TGGAGAGTTGTTTGTACAGTTGGGTTTTGTTACAGTGTA3TCACTGCAACCTCCACCTCACTGCAACCTCCACCTTCCG0	24	GGGCAGTGGA	TCTAGAC	GTGACAGTGAATCTAGACAGAC	3	352810-A
TGGAAAGTTGGTTGTATGGTTGGAATGGTGGTTGTATGGTTG3TGGAGAGTTCCATATTTTGTGATAGATCCATATTTTGGTAA3TGGAGAGTTGTTTGTACAGTTGGGTTTTGTTTGTACAGTGTA3TCACTGCAACCTCCACCTCACTGCAACCTTCCACCTTCCG0	25	TCAAGCTCATTC	CACTAAA	CTCAGCTCATCCACTAAATCCC	3	353184-A
TGGAGAGTTCCATATTITGTGATAGATCCATATTITGGTAA3TGGAGAGTTGTTTGTACAGTTGGGTTTTGTTTGTACAGTGTA3TCACTGCAACCTCCACCTCACTGCAACCTTCCACCTTCCG0	26	TGGAAAGTT	GGПGТАТGGП	GGAATGGTGGTTGTATGGTTG	ယ	353855-A
TGGAGAGTT GTTTGTACAGT TGGGTTTTGTTGTACAGTGTA 3 TCACTGCAAC CTCCACC TCACTGCAACCTCCACCTTCCG 0	27	TGGAGAGTT	CCATATITIG	TGATAGATCCATATTTTGGTAA	ယ	352004-A
TCACTGCAAC CTCCACC TCACTGCAACCTCCACCTTCCG 0	28	TGGAGAGTT		ТGGGTTTTGTTGTACAGTGTA	3	353160-A
	29	TCACTGCAAC	CTCCACC	TCACTGCAACCTCCACCTTCCG	0	353856-A



**FIG. 15A** 

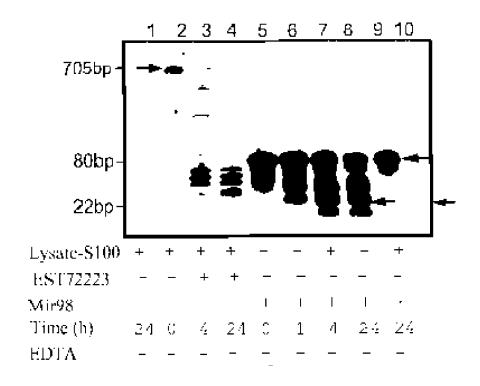
## EST72223 (705 nt.)

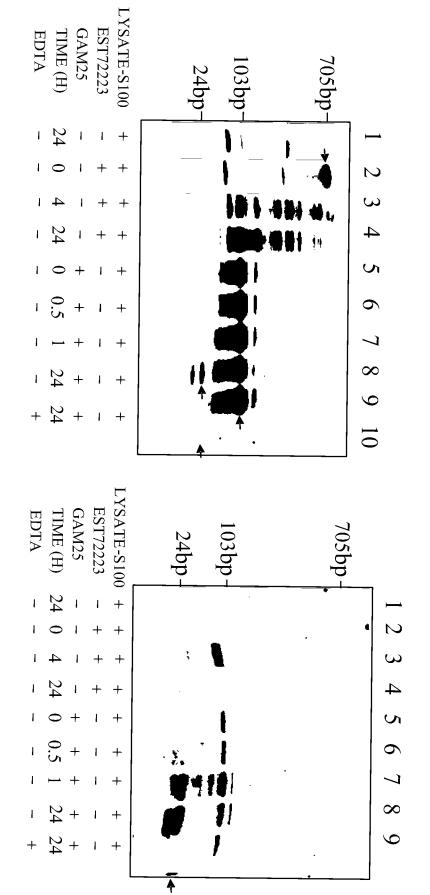


## EST72223 sequence:

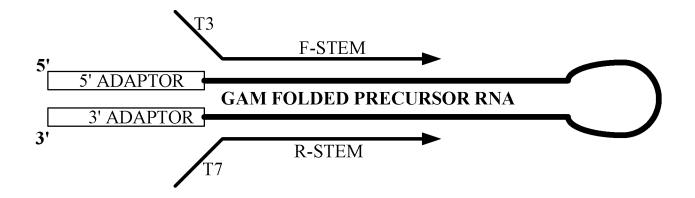
CCCTTATTAGAGGATTCTGCTCATGCCAGGGTGAGGTAGTAAGTTGTATTG **TTGTGGGGTAGGGATATTAGGCCCCAATTAGAAGATAACTATACAACT** MIR98 TACTACTTTCCCTGGTGTGTGGCATATTCACACTTAGTCTTAGCAGTGTTGCC TCCATCAGACAAAGTTGTAGATGTTCCTTGGATAATTTGGACTGGAAGAAAAGA GACATGGAAGGGGACAGATGGTGTTTAGGGTGAGGCAGATGTCATTATAAAGT GACTTGTCTTTCATTAATTGGAGCATATAATTATTTTACCTTTGGGCATGAACTC ATTTTGCTATTCTTCAACTGTGTAATGATTGCATTTTATTAGTAATAGAACAGGA ATGTGTGCAAGGGAATGGAAAGCATACTTTAAGAATTTTGGGCCAGGCGCGGT GGTTCATGCCTGTAATCCCAGCATTTTTGGGAGGCCGAGGCGGGTGGATCAC CTGAGGTCAGGAGTTCGAGACCAACCTGGCCAACACGGCGAAACCCCGCCTC TACTCAAATACAAAAATTAGCCAGGCTTGGTGACACTCGCCTGTGGTCCCAGC GAM25 TACTCAGGAGGCTGAGGCAGGAGAATTGCTTGAACCCAGGAAGTGGAG GCTTCAGTGAGCTGAGAACACGCCACTGCACTCCAGTCCTGGGCAAC **AGAGCAAGACTCTGTCTC**AGGAAAAAAAAA

## **FIG. 15B**

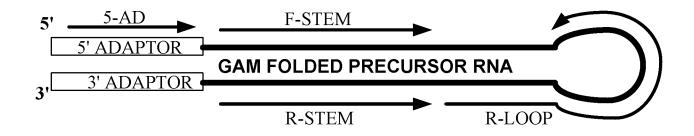




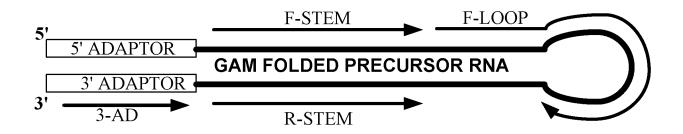
**FIG. 16A** 



**FIG. 16B** 



**FIG. 16C** 



**FIG. 17A** 

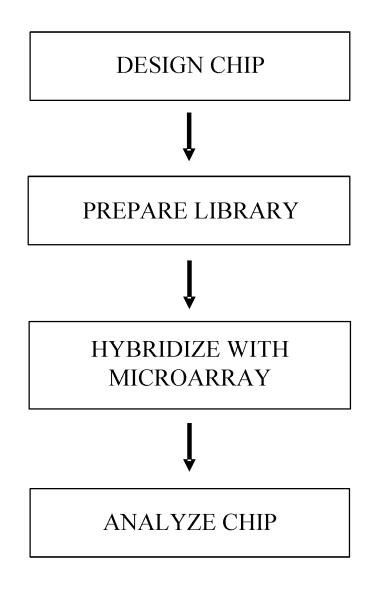


FIG. 17B

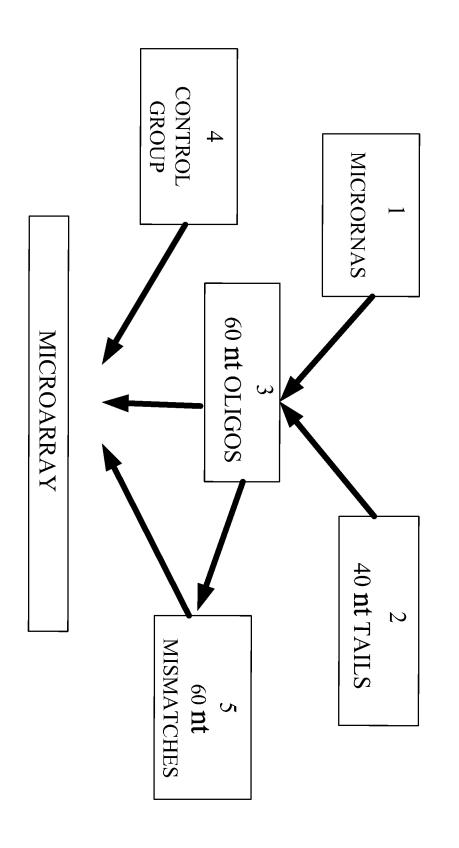
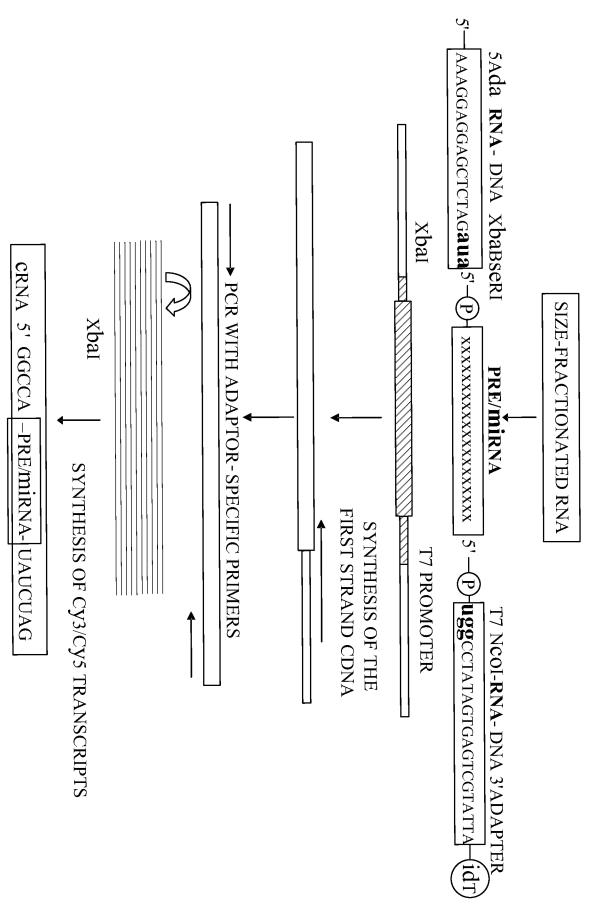
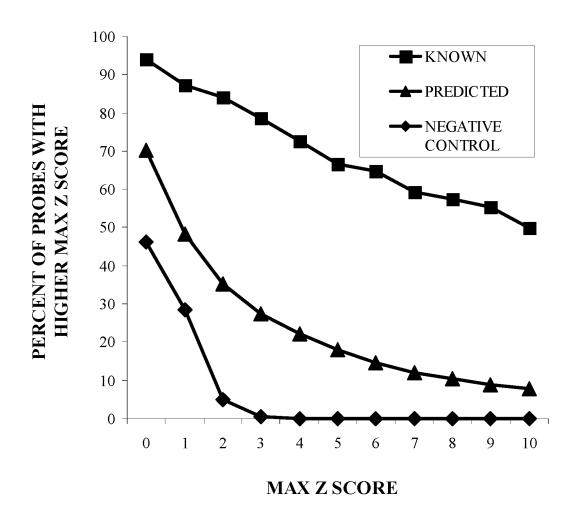


FIG. 17C



**FIG. 18A** 



**FIG. 18B** 

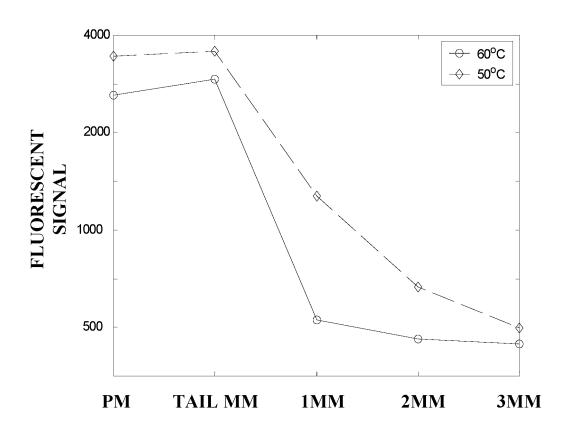


FIG. 18C

	0		יביים ביטו טל	۸ ٦	LI VIVENIUO SOOV	1 1000	J
	8840	3100	776	709	725	465	HSA-MIR-136
	33532	1478	10636	1027	595	556	HSA-MIR-200C
	40076	11173	6021	2990	3492	1312	HSA-MIR-23A
	46845	2000	4063	1220	805	696	HSA-MIR-141
	54287	10608	20212	3520	9325	625	HSA-MIR-221
	62452	15288	6864	10703	2280	844	HSA-MIR-210
	65518	5377	32305	7684	11061	3233	HSA-MIR-224
	997	2250	763	698	617	448	HSA-MIR-134
	9637	14750	3309	1914	733	438	HSA-MIR-154
	738	23083	3871	477	433	410	HSA-MIR-10B
	6233	64859	6535	1757	3898	525	HSA-MIR-204
	2138	1681	8754	1286	1123	1026	HSA-MIR-183
	3683	2034	25771	1091	1944	662	HSA-MIR-182
	39072	2645	65518	1646	615	551	HSA-MIR-205
	5280	29728	65518	5295	1463	648	HSA-MIR-150
	5466	2266	44800	1477	3100	887	HSA-MIR-96
	2607	1263	1628	20650	606	452	HSA-MIR-192
	2711	6204	5250	38436	620	413	HSA-MIR-148
3	7952 3	2342	4737	65518	910	501	HSA-MIR-194
1,3	570 1,3	617	2644	65518	447	1051	HSA-MIR-122A
	2027	5383	4819	3954	21969	1168	HSA-MIR-128B
3	2017 3	5364	2213	1175	22573	503	HSA-MIR-129
3	2495	5166	4876	4940	27701	2015	HSA-MIR-128A
2,3	2313 2,3	4485	4455	3504	42659	642	HSA-MIR-9
1,3	2498 1,3	2672	3099	7025	65517	1879	HSA-MIR-124A
REFERENCE	PLACENTA	TESTES	THYMUS	LIVER	BRAIN	HELA	MIRNA NAME

1 LAGOS-QUINTANA ET AL., CURRENT BIOLOGY 12:735 (2002) 2 KRICHEVSKY ET AL., RNA 9:1274 (2003) 3 SEMPERE ET AL., GENOME BIOLOGY 5:R13 (2004)

**FIG. 19A** 

5'UTR SEQUENCE (5' TO 3') OF HIV-1 (U5-R)

GGTCTCTCTGGTTAGACCAGATCTGAGCCTGGGAGCTCTCTGGCTAACT AGGGAACCCACTGCTTAAGCCTCAATAAAGCTTGCCTTGAGTGCTTCAAGTA GTGTGTGCCCGTCTGTTGTGTGACTCTGGTAACTAGAGATCCCTCAGACCCTT TTAGTCAGTGTGGAAAATCTCTAGCAGTGGCGCCCGAACAGGGACCTGAAAG CGAAAGGGAAACCAGAGGAGCTCTCTCGACGCAGGACTCGGCTTGCTGAA GCGCGCACGGCAAGAGGCGAGGGGCGGCGACTGGTGAGTACGCCAAAAA TTTTGACTAGCGGAGGCTAGAAGGAGAGAG

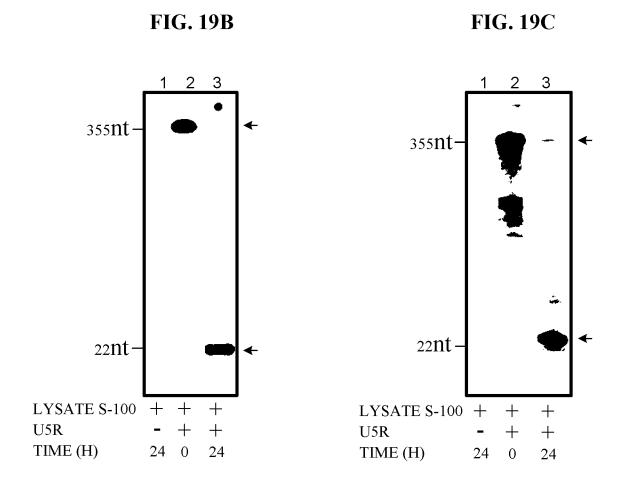
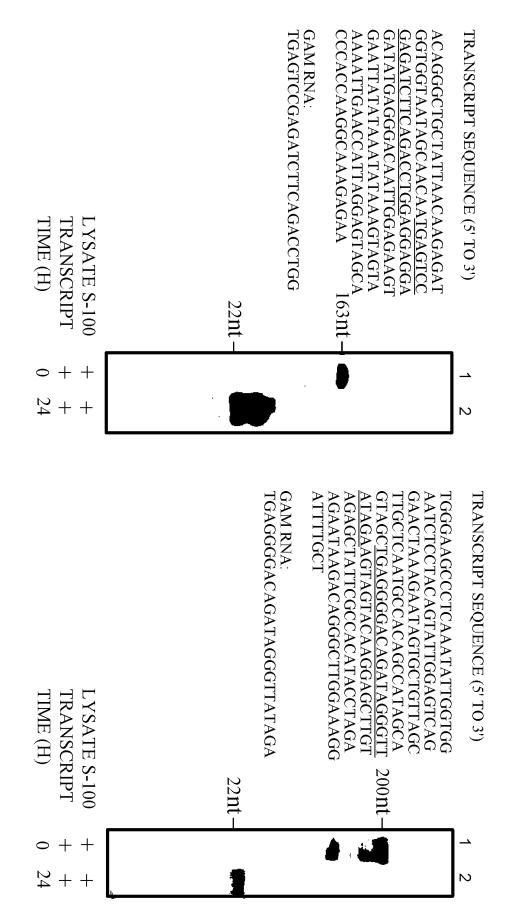
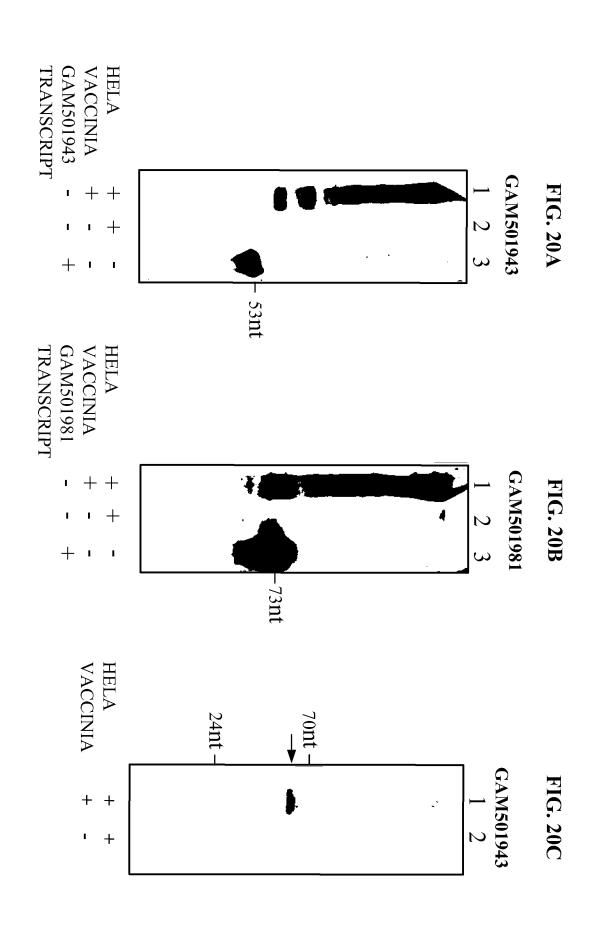
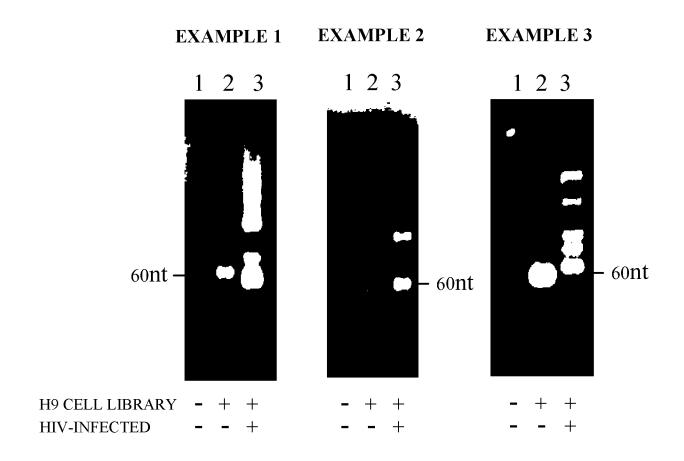


FIG. 19E





**FIG. 21A** 



**FIG. 21B** 

ROW				FIG. 21D  GAM PRECURSOR	~		
	PRIMER SEQUENCE	SEQUENCED SEQUENCE	SEQUENCE	SEQUENCE	CHR	STRAND	START OFFSET
<u></u>	GGAAAGAA T	GGAAAGAAT GTGGGTGCA C	GGAAAGGA AAGTGGGT GCAC	GACAGTGGCAATGGGGAAAGGAAAGTGGGTGCACT CAAGCTAGGCAGAAGTCAGCTAGGCAAGATGTGTA ACTGGTTCAACTTCTGCATAGAGGAGAATGTAGGTC CTTTCCATTCTAATATAGATGTTC	11	+	6527398
2	GCAAGAGG CG	GCAAGAGGC GCAAGAGT GAGAAGCAG GAGAAGCA A GA	GCAAGAGT GAGAAGCA GA	CCCAGGTTCTGCAAGAGTGAGAAGCAGAAAGCCTA CTTTGCGTTGCCTCTACCTGAGGAGAAGAAGCCAGG TGTGCTCTCAGATGGTCGGGGTAGTGCTTGGG	20	+	10164522
3		GGAAAGAA GGAAAGGA TAATGTGAG TAATGTGA	<b>(</b> 1)	ATTCTTCATGTTTGGCTAAAAGAGACTCCAACTGCT TGGCCTCTTTCTGAACCTACTATTAAGAGGAAAGGA TAATGTGAGGCAGGCTAGTATGGACCTGTTTACTCC GATTTCATCAAATGGAGCTT	21	+	24398831
4		GGAAAGAA GGAAAGAT GGAAAGAT TAATGTGAA AATGTGAA	GGAAAGAT AATGTGAA	GCTAGAGAGTTGAGACCGAGTGAAGGCCACACCTC CGGAGGGAAAGATAATGTGAAGGCTCTCTCCACTG ACATGTCACATGCTTTCTACTTGACTGGGCTTCCCT AAACTTGGGTAATTTTCAGC	6	+	50974009
5	CTTTTTGCC TG	CTTTTTGCC CTTTTTGCCT TG GGGCAGGGC	CTTTTTGCA GGGCAGGG C	CTCTTCTAACTTCAGTCCTTTTTGCAGGGCAGGGCT TACTCTAGGAAACTTATTGCAAGGTAAGTCAAGTC	5	1	65170275
6	CTCTCTGG T	CTCTCTGGTT CTAGTCTGG AGTACTTGG TTAGTACTT A GGA	CTAGTCTGG TTAGTACTT GGA	AGGGTCTAGTCTGGTTAGTACTTGGATGAGAGACCA AATAGCAAATACTTAAAAATGTCTTTTCTAAGGAAAT TAAATTGGCTCCT	11	+	88695685
7	GCAAGAGG CG	GCAAGAGGC GCAGAGGC GAGAAGCAG AGAAGCAG T	GCAGAGGC AGAAGCAG T	TCTTGCCTTGCACTGTCCATAAATCTGCCCTGGCTTT CTGCCTGACTGCACACTAAGAATCATGCACAGAAA GCAGAGGCAGAAGCAGTGATTGGTAAGG	1	+	193722202
8	CTCTCTGG TTA	CTCTCTGGTT GAGTAATA AGTAATAGG GG	CTCTCTGGA GAGTAATA GG	CTTTGAGAAAAAGAGGCTTGTTATATTCCAAGCATG AGATGATTATTAGAAACACTTATTTTCTGTTCTCTCT GGAGAGTAATAGGCAGAACCCCCTTATCAGGG	2	-	240247210